

287410

Duke, Daphne**From:** Natanel Lev <nlev@poweradvisoryllc.com>**Sent:** Thursday, September 12, 2019 6:03 PM

To: ahand@willoughbyhoefer.com; Belton T. Zeigler <belton.zeigler@wbd-us.com>; cgrundmann@spilmanlaw.com; dwilliamson@spilmanlaw.com; J. Blanding Holman <bholman@selcsc.org>; Jamey Goldin <Jamey.Goldin@nelsonmullins.com>; Nelson, Jeff <jnelson@ors.sc.gov>; Pittman, Jenny <jpittman@ors.sc.gov>; Jeremy Hodges <jeremy.hodges@nelsonmullins.com>; K. Chad Burgess <chad.burgess@scana.com>; Matthew Gissendanner <matthew.gissendanner@scana.com>; Mitch Willoughby <mwilloughby@willoughbyhoefer.com>; Edwards, Nanette <nedwards@ors.sc.gov>; richard@rlwhitt.law; Scott Elliott <selliott@elliottlaw.us>; seaton@spilmanlaw.com; sferguson@selcsc.org; Weston Adams <weston.adams@nelsonmullins.com>

Cc: Stark, David <david.stark@psc.sc.gov>; John Dalton <jdalton@poweradvisoryllc.com>; Carson Robers <crobers@poweradvisoryllc.com>

Subject: [External] PSC Docket No. 2019-184-E Notice of Service

To all parties registered under PSC Proceeding 2019-184-E:

This email is meant to serve as a notice of service that Power Advisory LLC (independent expert consultant engaged by the PSC) is hereby serving upon Dominion Energy South Carolina, Inc. with one First Request for Production and one First Request for Interrogatories. Attached to this email you will find:

1. First Request for Production
2. First Request for Interrogatories
3. Certificate of Service
4. Docket Cover Sheet
5. Filing Letter

Thank you,

Nathan Lev, JD, MÉS.

Consultant

55 University Ave, Suite 605 – PO BOX 32

Toronto, ON, Canada M5J 2H7

Email: nlev@poweradvisoryllc.com

Mobile: 416-887-3199

Web: www.poweradvisoryllc.com

STATE OF SOUTH CAROLINA

(Caption of Case)

South Carolina Energy Freedom Act (H.3659)
 Proceeding to Establish Dominion Energy South
 Carolina, Incorporated's Standard Offer, Avoided
 Cost Methodologies, Form Contract Power
 Purchase Agreements, Commitment to Sell
 Forms, and Any Other Terms or Conditions Necessary
 (Includes Small Power Producers as Defined in 16
 United States Code 796, as Amended) - S.C. Code
 Ann. Section 58-41-20(A)

BEFORE THE
 PUBLIC SERVICE COMMISSION
 OF SOUTH CAROLINA

COVER SHEET

DOCKET

NUMBER: 2019 - 184 - E

(Please type or print)

Submitted by: John Dalton

SC Bar Number: _____

Address: 212 Thoreau StreetTelephone: 978 369 2465Concord, MA

Fax: _____

01742

Other: _____

Email: jdalton@poweradvisoryllc.com

NOTE: The cover sheet and information contained herein neither replaces nor supplements the filing and service of pleadings or other papers as required by law. This form is required for use by the Public Service Commission of South Carolina for the purpose of docketing and must be filled out completely.

DOCKETING INFORMATION (Check all that apply)

☐ Emergency Relief demanded in petition☐ Request for item to be placed on Commission's Agenda expeditiously☐ Other: _____

INDUSTRY (Check one)

NATURE OF ACTION (Check all that apply)

☒ Electric☐ Affidavit☐ Letter☐ Request☐ Electric/Gas☐ Agreement☐ Memorandum☐ Request for Certification☐ Electric/Telecommunications☐ Answer☐ Motion☐ Request for Investigation☐ Electric/Water☐ Appellate Review☐ Objection☐ Resale Agreement☐ Electric/Water/Telecom.☐ Application☐ Petition☐ Resale Amendment☐ Electric/Water/Sewer☐ Brief☐ Petition for Reconsideration☐ Reservation Letter☐ Gas☐ Certificate☐ Petition for Rulemaking☐ Response☐ Railroad☐ Comments☐ Petition for Rule to Show Cause☐ Response to Discovery☐ Sewer☐ Complaint☐ Petition to Intervene☐ Return to Petition☐ Telecommunications☐ Consent Order☐ Petition to Intervene Out of Time☐ Stipulation☐ Transportation☒ Discovery☐ Prefiled Testimony☐ Subpoena☐ Water☐ Exhibit☐ Promotion☐ Tariff☐ Water/Sewer☐ Expedited Consideration☐ Proposed Order☐ Other: _____☐ Administrative Matter☐ Interconnection Agreement☐ Protest☐ Other: _____☐ Interconnection Amendment☐ Publisher's Affidavit☐ Late-Filed Exhibit☐ Report

Print Form

Reset Form

September 12, 2019

VIA ELECTRONIC FILING

The Honorable Jocelyn D. Boyd
Chief Clerk/Administrator
Public Service Commission of South Carolina
101 Executive Center Drive
Columbia, South Carolina 29211

Re: South Carolina Energy Freedom Act (H.3659) Proceeding to Establish Dominion Energy South Carolina, Incorporated's Standard Offer, Avoided Cost Methodologies, Form Contract Power Purchase Agreements, Commitment to Sell Forms, and Any Other Terms or Conditions Necessary (Includes Small Power Producers as Defined in 16 United States Code 796, as Amended) - S.C. Code Ann. Section 58-41-20(A); Docket No. 2019-184-E

Dear Ms. Boyd,

Attached for filing on behalf of Power Advisory LLC, independent third-party consultant for the PSC, are Power Advisory's First Set of Interrogatories and First Request for Production to Dominion Energy South Carolina, Inc. By copy of this letter, we are serving all parties of record and those entities that have petitioned to intervene in this matter with a copy of this notice and attach a certificate of service to that effect.

If you have any questions regarding this matter, please advise.

Kind Regards,

Power Advisory LLC

s/John Dalton

Carson Robers

Encl.

cc: Andrew R. Hand
Belton T. Zeigler
Carrie Harris Grundmann

Derrick Price Williamson
J. Blanding Holman, IV
James Goldin
Jeffrey M. Nelson
Jenny R. Pittman
Jeremy C. Hodges
K. Chad Burgess
Matthew W. Gissendanner
Mitchell Willoughby
Nanette S. Edwards
Richard L. Whitt
Scott Elliott
Stephanie U. (Roberts) Eaton
Stinson Woodward Ferguson
Weston Adams III

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2019-184-E

IN RE:)	
South Carolina Energy Freedom Act)	
(H.3659) Proceeding to Establish)	
Dominion Energy South Carolina,)	
Incorporated's Standard Offer, Avoided)	
Cost Methodologies, Form Contract Power	)	CERTIFICATE OF SERVICE
Purchase Agreements, Commitment to Sell)	
Forms, and Any Other Terms or)	
Conditions Necessary (Includes Small)	
Power Producers as Defined in 16 United)	
States Code 796, as Amended) - S.C. Code)	
Ann. Section 58-41-20(A))	

This is to certify that I have this date caused to be served one (1) copy of the **First Set of Interrogatories to Dominion Energy South Carolina, Inc.** and one (1) copy of the **First Request for Production to Dominion Energy South Carolina, Inc.** on behalf of Power Advisory LLC, independent third-party consultant engaged by the PSC, in the above-referenced matter upon the persons named below via electronic mail:

Andrew R. Hand , Counsel
Willoughby & Hoefer, P.A.
ahand@willoughbyhoefer.com

Belton T. Zeigler
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Weston Adams III , Counsel
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weston.adams@nelsonmullins.com



Nathan Lev

Concord, Massachusetts
September 12, 2019

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2019-184-E

IN RE:)	
South Carolina Energy Freedom Act)	
(H.3659) Proceeding to Establish	)	POWER ADVISORY LLC'S (SERVING AS
Dominion Energy South Carolina,	)	INDEPENDENT THIRD PARTY
Incorporated's Standard Offer, Avoided	)	CONSULTANT ENGAGED BY THE
Cost Methodologies, Form Contract Power	)	COMMISSION) FIRST REQUESTS FOR
Purchase Agreements, Commitment to Sell	)	PRODUCTION OF DOCUMENTS TO
Forms, and Any Other Terms or	)	DOMINION ENERGY SOUTH
Conditions Necessary (Includes Small	)	CAROLINA, INC.
Power Producers as Defined in 16 United)	
States Code 796, as Amended) - S.C. Code)	
Ann. Section 58-41-20(A))	

TO: MITCHELL WILLOUGHBY, ESQUIRE, AND ANDREW R. HAND,
ESQUIRE, ATTORNEYS FOR DOMINION ENERGY SOUTH CAROLINA, INC.

Pursuant to S.C. Code Ann. Regs. 103-833 and the South Carolina Rules of Civil Procedure, Power Advisory LLC ("Power Advisory"), serving as the independent third-party consultant to the Public Service Commission of South Carolina ("PSCSC") in this proceeding, hereby serves upon Dominion Energy South Carolina, Inc. ("DESC") these First Requests for Production of Documents ("Requests") to be answered in writing within seven (7) days of the date of service hereof and that the documents identified in such written responses be produced for inspection and copying to the undersigned at the offices of John Dalton and Carson Robers, Power Advisory LLC, 212 Thoreau Street, Concord, Massachusetts 01742.

INSTRUCTIONS

IT IS HEREIN REQUESTED:

1. That all information shall be provided to the undersigned in the format as requested.
2. That all responses to the below Requests shall be labeled using the same numbers as used herein.
3. That if the requested information is found in other places or in other exhibits, reference not be made to those, but, instead, that the information be reproduced and placed in the responses to the Interrogatories in the appropriate sequence.
4. That any inquiries or communication relating to questions concerning clarifications of the information requested below be directed to the undersigned.
5. That all exhibits be reduced to an 8.5" x 11" format.
6. That all documents be provided in their native format, e.g., in Word, Excel, or PowerPoint format with all functions and formulas intact.
7. That, in addition to the signature and verification at the close of DESC's responses, DESC's witness(es) responsible for the information contained in each response be also indicated.
8. That each request be reproduced at the beginning of the response thereto.
9. That DESC provide the undersigned with responses to these Requests as soon as possible but not later than seven (7) days from the date of service hereof.
10. If the response to any request is that the information requested is not currently available, state when the information requested will become available.

11. These Requests shall be deemed continuing so as to require DESC to supplement or amend its responses as any additional information becomes available up to and through the date of hearing.

12. If a privilege not to answer an interrogatory is claimed, identify each matter as to which the privilege is claimed, the nature of the privilege, and the legal and factual basis for each such claim.

13. If a refusal to answer a request is based on the grounds that same would be unduly burdensome, identify the number and nature of documents needed to be searched, the location of the documents, and the number of man hours and the costs required to conduct the search.

14. Answer each request on the basis of the entire knowledge of DESC, including information in the possession of DESC, their officers, directors, consultants, representatives, agents, experts, and attorneys, if any.

15. If any request cannot be answered in full, answer to the extent possible and specify the reasons for DESC's inability to answer.

DEFINITIONS

1. The terms "DESC," "You," and "Your" where used in these Interrogatories refers to Dominion Energy South Carolina, Inc., together with their employees, agents, consultants, experts, subsidiaries, affiliates, and other operational or functional units and all officers, directors, owners, members, employees, agents and representatives of these entities. It also includes all other persons acting on behalf of the Dominion Energy South Carolina.

2. The term "PSCSC" where used in these Requests refers to the Public Service Commission of South Carolina.

3. “Document” and “documents” shall mean all written, recorded or graphic matters whatsoever and all non-identical copies thereof, including but not limited to papers, work papers, books, records, letters, photographs, correspondence, communications, electronic mail, facsimile, telegrams, cables, telex messages, text messages, evidences of payment, checks, memoranda, notes, notations, transcripts, minutes, reports, recordings of telephone or other conversations, statements, summaries, opinions, studies, analyses, evaluations, contracts, agreements, jotting, agendas, bulletins, notices, announcements, advertisements, guidelines, charts, manuals, brochures, publications, schedules, price lists, subscription lists, customer lists, journals, statistical reports, desk calendars, appointment books, diaries, lists, tabulations, newsletters, drafts, proofs, galleys, or other prepublication forms of materials, telephone lists or indexes, rolodexes, computer printouts, data processing program libraries, data processing input and outputs, microfilm, microfiches, cd roms, books of account, records or invoices reflecting business operations, all records kept by electronic, photographic or mechanical means, any notes or drafts relating to any of the foregoing, and any other documents as defined in Rule 34 of the South Carolina Rules of Procedure of any kind in your possession, custody or control or to which you have access or know to exist.

4. “Communication(s)” when used in these Requests shall include the transmittal of information by any means, written, oral, electronic or otherwise.

5. “Relate,” “relating,” “relating to,” and “related to” when used in these Interrogatories shall mean recording, summarizing, embodying, constituting, reflecting, digesting, referring to, commenting upon, describing, reporting, listing, analyzing, studying, or otherwise discussing in any way a subject matter identified in the interrogatory, and is defined so as to reach all matters within the scope of discovery pursuant to the Commission’s Regulations and the South

Carolina Rules of Civil Procedure, including all information which, though inadmissible at trial, is reasonably calculated to lead to the discovery of admissible evidence.

6. Please construe “and” as well as “or” either disjunctively or conjunctively as necessary to bring within the scope of these Interrogatories any information which might otherwise be construed outside their scope.

REQUESTS FOR PRODUCTION

1. Produce all documents referred to by DESC or their attorneys in preparing the Answers to DESC’s First Set of Interrogatories served contemporaneously herewith.

2. Produce any and all statements, written, oral, or transcribed, of any individual that relate in any manner to the claims of DESC in this matter or that relate in any manner to the matters at issue in this matter, whether said statements have been taken by DESC, or any individuals acting on behalf of DESC.

3. Produce any and all diagrams, sketches, drawings, maps, prints, negatives, photographs, videos, layouts, and other documents that relate in any manner to the claims of DESC in this matter or that relate in any manner to the matters at issue in this proceeding.

4. Produce all reports or other documents, including work papers, prepared by any expert witness retained by or on behalf of DESC in this case, including a current curriculum vitae.

5. Produce all documents in the custody or control of DESC or their attorneys that relate in any manner to the claims of DESC in this matter or that relate in any manner to the matters at issue in this proceeding, including without limitation, all exhibits DESC intend to use at trial.

6. Produce copies of all documents and calculations in Word and Excel format with all functions and formulas intact that support or form the basis for the testimony that you intend to

present of any person identified in response to Interrogatory Nos. 1, 3, 4, or 5 as set forth in the First Set of Interrogatories served contemporaneously herewith.

7. Please provide copies of your responses to any interrogatories, requests to produce, or other forms of information or data requests simultaneously with your provision of said responses to the requesting party. If you have already provided responses to any information or data requests prior to the receipt of these Requests, then please provide any such responses within five (5) days of the receipt of these Requests.

[SIGNATURE BLOCK ON NEXT PAGE]

A handwritten signature in black ink that reads "John Dalton". The signature is written in a cursive style with a horizontal line underneath it.

John Dalton
Carson Robers
Power Advisory LLC
*Independent Third-party Consultant to the Public Service
Commission of South Carolina*
212 Thoreau Street

Concord, MA 01742
Telephone: (978) 369-2465
jdalton@poweradvisoryllc.com
crobers@poweradvisoryllc.com

Concord, Massachusetts
September 12, 2019

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2019-184-E

IN RE:)	
South Carolina Energy Freedom Act)	
(H.3659) Proceeding to Establish)	
Dominion Energy South Carolina,	)	POWER ADVISORY LLC
Incorporated's Standard Offer, Avoided	)	(SERVING AS INDEPENDENT THIRD
Cost Methodologies, Form Contract Power	)	PARTY CONSULTANT ENGAGED BY
Purchase Agreements, Commitment to Sell	)	THE COMMISSION)
Forms, and Any Other Terms or	)	FIRST SET OF INTERROGATORIES TO
Conditions Necessary (Includes Small	)	DOMINION ENERGY SOUTH
Power Producers as Defined in 16 United	)	CAROLINA, INC.
States Code 796, as Amended) - S.C. Code)	
Ann. Section 58-41-20(A))	

TO: MITCHELL WILLOUGHBY, ESQUIRE, AND ANDREW R. HAND, ESQUIRE,
ATTORNEYS FOR DOMINION ENERGY SOUTH CAROLINA, INC.

Pursuant to S.C. Code Ann. Regs. 103-833 and the South Carolina Rules of Civil Procedure, Power Advisory LLC (“Power Advisory”), serving as the independent third-party consultant to the Public Service Commission of South Carolina (“PSCSC”) in this proceeding, hereby requests that Dominion Energy South Carolina, Inc. (“DESC”) respond to this First Set of Interrogatories (“Interrogatories”) fully, under oath, and in writing within seven (7) days of the date of service hereof to the offices of John Dalton and Carson Robers, Power Advisory LLC, 212 Thoreau Street, Concord, Massachusetts 01742.

INSTRUCTIONS

IT IS HEREIN REQUESTED:

1. That all information shall be provided to the undersigned in the format as requested.

2. That all responses to the below Interrogatories shall be labeled using the same numbers as used herein.

3. That if the requested information is found in other places or in other exhibits, reference not be made to those, but, instead, that the information be reproduced and placed in the responses to the Interrogatories in the appropriate sequence.

4. That any inquiries or communication relating to questions concerning clarifications of the information requested below be directed to the undersigned.

5. That all exhibits be reduced to an 8.5" x 11" format.

6. That each interrogatory be reproduced at the beginning of the response thereto.

7. That, in addition to the signature and verification at the close of DESC's responses, DESC's witness(es) responsible for the information contained in each response be also indicated.

8. That DESC provide the undersigned with responses to the Interrogatories as soon as possible but not later than seven (7) days from the date of service hereof.

10. If the response to any interrogatory is that the information requested is not currently available, state when the information requested will become available.

11. These Interrogatories shall be deemed continuing so as to require DESC to supplement or amend its responses as any additional information becomes available up to and through the date of hearing.

12. If a privilege not to answer an interrogatory is claimed, identify each matter as to which the privilege is claimed, the nature of the privilege, and the legal and factual basis for each such claim.

13. If a refusal to answer an interrogatory is based on the grounds that same would be unduly burdensome, identify the number and nature of documents needed to be searched, the

location of the documents, and the number of man hours and the costs required to conduct the search.

14. Answer each interrogatory on the basis of the entire knowledge of DESC, including information in the possession of DESC, their officers, directors, consultants, representatives, agents, experts, and attorneys, if any.

15. If any interrogatory cannot be answered in full, answer to the extent possible and specify the reasons for DESC's inability to answer.

DEFINITIONS

1. The terms "DESC," "You," and "Your" where used in these Interrogatories refers to Dominion Energy South Carolina, Inc., together with their employees, agents, consultants, experts, subsidiaries, affiliates, and other operational or functional units and all officers, directors, owners, members, employees, agents and representatives of these entities. It also includes all other persons acting on behalf of the Dominion Energy South Carolina.

2. The term "PSCSC" where used in these Interrogatories refers to the Public Service Commission of South Carolina.

3. "Document" and "documents" shall mean all written, recorded or graphic matters whatsoever and all non-identical copies thereof, including but not limited to papers, work papers, books, records, letters, photographs, correspondence, communications, electronic mail, facsimile, telegrams, cables, telex messages, text messages, evidences of payment, checks, memoranda, notes, notations, transcripts, minutes, reports, recordings of telephone or other conversations, statements, summaries, opinions, studies, analyses, evaluations, contracts, agreements, jotting, agendas, bulletins, notices, announcements, advertisements, guidelines, charts, manuals, brochures, publications, schedules, price lists, subscription lists, customer lists, journals, statistical

reports, desk calendars, appointment books, diaries, lists, tabulations, newsletters, drafts, proofs, galleys, or other prepublication forms of materials, telephone lists or indexes, rolodexes, computer printouts, data processing program libraries, data processing input and outputs, microfilm, microfiches, cd roms, books of account, records or invoices reflecting business operations, all records kept by electronic, photographic or mechanical means, any notes or drafts relating to any of the foregoing, and any other documents as defined in Rule 34 of the South Carolina Rules of Procedure of any kind in your possession, custody or control or to which you have access or know to exist.

4. “Relate,” “relating,” “relating to,” and “related to” when used in these Interrogatories shall mean recording, summarizing, embodying, constituting, reflecting, digesting, referring to, commenting upon, describing, reporting, listing, analyzing, studying, or otherwise discussing in any way a subject matter identified in the interrogatory, and is defined so as to reach all matters within the scope of discovery pursuant to the Commission’s Regulations and the South Carolina Rules of Civil Procedure, including all information which, though inadmissible at trial, is reasonably calculated to lead to the discovery of admissible evidence.

5. “Identify” or “identity” used with reference to an individual means to state his or her full name, present or last known address, present or last known position and business affiliation, and employer, title, and position at the time in question. If the person was an officer, director, trustee, commissioner, or employee of DESC, also state the job title and areas of responsibility.

6. “Identify” or “identity” used with reference to a writing means to state the date, author, type of document (e.g., letter, memorandum, e-mail, chart, note, application, etc.) or other means of identification, and its present location or custodian. If any such document is no longer in DESC’s possession or subject to its control, state what disposition was made of it.

7. “Address” means home address, mailing address, and business address.

8. Please construe “and” as well as “or” either disjunctively or conjunctively as necessary to bring within the scope of these Interrogatories any information which might otherwise be construed outside their scope.

INTERROGATORIES

1. The Direct Testimony of John H. Raftery notes “It is important to note that in making this determination, DESC is not incentivized to understate or overstate its avoided costs because customers pay through fuel rates any costs not borne by a solar developer.” (p. 7-8). Doesn’t this just apply to energy costs and not capacity costs? Please explain.

2. The Direct Testimony of Eric H. Bell notes “When constructed and interconnected, these additional facilities will add approximately 624 MW of additional utility-scale solar generation to the Company’s system.” (p. 11).

(a) Is any attrition assumed for this 624 MW of additional solar generation?

(b) What has been the Company’s experience with respect to the attrition rate for solar projects?

(c) How has this attrition rate varied for different size and types of projects?

3. The Direct Testimony of Eric H. Bell notes “The total solar installed was approximately 434 MW as compared to the Navigant Baseline scenario of 336 MW.” (p. 21). Please explain why there is a difference between the assumed value of 336 MW and the actual value of 434 MW (e.g., did projects achieve commercial operation sooner than anticipated, were additional contracts offered to projects beyond what was anticipated.)

4. The Direct Testimony of James W. Neely states” We observed that additional reserves equal to 35% of the installed solar capacity is sufficient to cover most of the one-hour

solar intermittency. The avoided cost calculations included in this testimony were modeled with additional reserves equal to 35% of the installed solar capacity, during solar generating hours.” (p. 10).

- (a) Please discuss the basis for the 35% of installed solar capacity that is maintained as additional reserves to cover most of the one-hour solar intermittency.
- (b) Please discuss the analysis that was performed to establish the 35% of installed solar capacity represented by additional reserves.
- (c) Please provide any accompanying work papers.

5. The Direct Testimony of John E. Folsom, Jr. states “Based on DESC’s experience, the amount of the Development Period Credit Support (as defined in the Form PPA), addressed in Section 9.3, was modified to \$55.00/kW-AC.” (p. 12).

- (a) Please discuss this relevant experience and how it informed the Development Period Credit Support value of \$55/kW-AC.
- (b) Were any analyses or reviews of other equivalent project security amounts performed?
If so, please discuss and provide the results of these analyses or reviews.

6. The Direct Testimony of John E. Folsom, Jr. states “In the Form PPA, the initial anticipated lead time for the project is based on a 12-month period, as specified in Section 4.2 of the Form PPA.” (p. 13).

- (a) Please present an indicative schedule for the development and construction of a 2 MW solar project indicating permitting and interconnection timelines.
- (b) With respect to interconnection approvals specify the anticipated timelines for the various elements of the interconnection approval process.

7. There is no Variable Integration Charge (VIC) in the Form PPA or in the Standard Offer since the avoided cost calculation was based on additional reserves equal to 35% of the installed solar capacity. Alternatively, DESC has estimated a VIC of \$4.14/MWh as calculated by Navigant. Please estimate the avoided costs using the same assumptions as employed to derive the \$4.14/MWh value, but without additional reserves equal to 35% of the installed solar capacity and calculate the difference between this avoided cost estimate with that presented in the Company's filing in this proceeding.

8. In the Direct Testimony of John E. Folsom, Jr., Mr. Folsom is asked if it is "possible that developers can take advantage of the Standard Offer and flood DESC with projects no larger than 2 MW-AC?" And Mr. Folsom answers: "Yes, quite possible." (p. 19).

(a) What does the Company estimate the cost of a 2MW solar PV project located in its service territory to be in \$/MWh amortized over ten and twenty years?

(b) Please provide all assumptions and work papers supporting this estimate.

9. The Direct Testimony of John E. Folsom, Jr. notes that "If DESC does not have interconnection facilities that are sufficient to accept the QF's power, DESC will notify the QF at least 30 days prior to the expiration of that 365-day deadline." (p. 26). In the Company's opinion would a QF be able to mitigate this risk by submitting an interconnection request prior to executing the NOC Form? Please discuss.

10. The Direct Testimony James W. Neely states "In order to qualify for this credit, the Seller's generation should be fully dispatchable during all of the capacity credit hours identified above." (p. 12).

(a) Please confirm that must-run resources operating during this period wouldn't qualify for this capacity credit.

- (b) Please discuss why a must run resource that is available and operating during this period doesn't offer any capacity value.

11. The Direct Testimony James W. Neely states "To calculate the capacity benefit we assumed 100 MW of capacity is added to the system in 2020 which causes a shift of needed resources and their costs. Next we calculate the 10-year levelized change in revenue requirements. This value becomes the capacity benefit in \$/kW." (p. 16). Please provide the workpapers that show these revenue requirements and the 10-year levelized change in revenue requirements.

12. "Because base gas prices is the most likely gas scenario and CO2 costs are uncertain at this point, resource scenario #7 is the resource plan used in developing avoided costs and forecasting fuel costs." The Resource Plan also indicates that "In this scenario, 400 MW of solar PPAs are added in 2026 which have no winter capacity."

- (a) Please discuss why the use of this resource scenario, which reflects 400 MW of solar PPAs added in 2026 doesn't inappropriately reduce the effective avoided costs realized by solar QF projects installed prior to this?

13. The Direct Testimony of Matthew W. Tanner states "geographic diversity was included in all phases of the analysis including actual data from [sic] 8 solar sites on the DESC system." (p. 16). The Cost of Variable Integration study notes that "the forecast error analysis was completed using NREL data located at four points around the DESC territory chosen to be near load centers." (p. 23).

- (a) Please reconcile these two statements.
- (b) Please provide a map of DESC's service territory and indicate the location of these 8 solar sites and the four locations where NREL data was used.

- (c) Please provide a map of DESC's service territory and indicate the relative distribution of solar projects in terms of aggregate capacity within DESC's service territory.
- (d) Please discuss whether real-time forecasts of solar energy output and solar energy output variability could contribute to reductions in the increased operating reserves to capture solar variability.
- (e) Please discuss Dr. Tanner's understanding of the efforts by ISOs and utilities to reduce solar integration costs by improving forecasts of real-time output, increasing awareness of output levels from projects without telemetered data, etc.

14. The Direct Testimony of Matthew W. Tanner states "The level of additional reserves that DESC needs to maintain was calculated as the maximum amount per day that solar could underproduce the forecasted amount." (p. 13).

- (a) Please discuss the relationship between the maximum amount per day that solar could "underproduce the forecast amount" that was calculated and the amount of incremental operating reserves that was assumed to be required in the Cost of Variable Integration Study.
- (b) Did the Cost of Variable Integration study establish the incremental operating reserves based on this maximum amount per day or did it reflect how the variability in solar output in aggregate MW is likely to change over the course of the day given diurnal patterns.
- (c) Please discuss whether in Dr. Tanner's opinion the solar forecast error expressed in MW is likely to change over the course of the day when these solar projects are operating?

- (d) Couldn't changes in the solar forecast error in MW over the course of the day when solar projects are operating be used to vary the amount of incremental operating reserves and reduce the incremental operating reserves in some hours? Please discuss.

15. The Direct Testimony of Matthew W. Tanner states "PROMOD does not allow operating reserve levels to change day-to-day." (p. 22). Given that the incremental operating reserve levels required for solar integration will vary from day-to-day and likely within a day, please discuss why PROMOD is an appropriate model upon which to assess solar integration costs.

16. The Cost of Variable Integration study notes that "The operating reserve requirements from solar are driven by the level of forecast uncertainty in solar generation. The NREL dataset provides the 4 hour-ahead forecast of hourly solar generation. This is the forecast that DESC system operators would use to schedule their units and determine which generators are required to be line." (p. 18). "The solar forecast error is calculated as the difference between the 4-hour ahead forecast generation and the 5-minute actual solar generation. This is appropriate because as the solar generation changes in the period between the 4-hour ahead forecast and actual operation, DESC will not have sufficient time to turn on any additional CC or ST units." (p. 22).

- (a) Please discuss why DESC wouldn't rely on an hour ahead and other near-term forecasts to schedule and commit units recognizing the start times of the CTs and CCGTs that would provide these operating reserves are considerably less than four hours as noted in the Cost of Variable Integration study (p. 8).
- (b) The Cost of Variable Integration study also notes that CCGTs are able to "provide reserves if they are turned on and operating below their full capability (holding some capability in reserve)." (p. 9). Doesn't the use of operating CCGTs to provide operating

reserve suggest that the appropriate forecast horizon to evaluate forecast error is less than four hours? Please discuss.

(c) Please reconcile why the 4-hour ahead forecast was used in the Cost of Variable Integration study and the Direct Testimony James W. Neely notes” We observed that additional reserves equal to 35% of the installed solar capacity is sufficient to cover most of the one-hour solar intermittency.” (p. 10).

(d) Please discuss how the forecast error changes from a 4 hour-ahead forecast of hourly solar generation relative to an hour-ahead forecast of hourly solar generation.

17. What does DESC estimate the development and construction time frame for a battery storage project to be?

18. (a) Please indicate in which jurisdictions solar resources are being charged for ancillary services or incurring some form of integration charge. (b) Where there is such a charge please indicate the amount of the charge. (c) And indicate the proportion of total capacity represented by solar specifying the amount of solar capacity in MW and the total amount of capacity.

19. Section 58-41-20 (F) (1) of Act 62 states “The commission may also approve commercially reasonable fixed price power purchase agreements with a duration longer than ten years, which must contain additional terms, conditions, and/or rate structures as proposed by intervening parties and approved by the commission, including but not limited to, a reduction in the contract price relative to the ten year avoided cost.”

(a) Have the Companies considered the appropriate reduction in contract price relative to the ten year avoided cost for a power purchase agreement with a duration of fifteen years or twenty years. Please discuss.

(b) How would the Companies propose to calculate such a reduction in contract price relative to the ten year avoided costs that the Companies have estimated?

20. (a) Please discuss the unit commitment process used by DESC and how this considers a generating unit's start time. (b) Please provide copies of any documents that DESC relies upon to guide its unit commitment process.

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